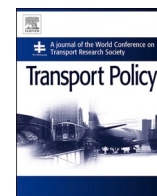




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Response to COVID-19 lockdowns from urban freight stakeholders: An analysis from three surveys in 2020 in France, and policy implications

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ABSTRACT

The global COVID-19 pandemic has led to the implementation of health measures of varying degrees and scales. The lockdowns that took place in 2020, especially, have had a major impact on cities, transforming urban lifestyles, economic activities and mobility. Logistics became a priority activity. Faced with changed levels and types of consumption, freight and logistics operators in cities had to adapt, while logistics real estate developers had to face challenges related to building sites closed and regulatory and licensing processes delayed. Our main research in this paper is to characterize the way the urban freight and logistics system coped with the new situation. We focused on French cities, with Paris and the Paris metropolitan area as the main case. We implemented three surveys during and after the first lockdown in France (March–May 2020), with the views of identifying challenges while characterizing stakeholders' response to the challenges. The three surveys took different and complementary forms, covering various categories of stakeholders: freight carriers (from small to large); third party logistics providers; on-demand delivery platforms; policy-makers; and logistics real-estate developers. We found out that operators adapted quickly and overall successfully, one major difference being between delivery operators and property developers. The first group experienced higher levels of financial and economic challenges; the second group experienced difficult relationships with administrations and regulations, while enjoying a rather high level of activity. The ability of local governments to deal with urban logistics challenges during the lockdowns was diverse and took several unexpected forms.

1. Introduction and research question

The global COVID-19 pandemic has led to the implementation of health measures of varying degrees and scales (total or partial lockdowns, social distancing, curfews). The lockdowns that took place in 2020, especially, have had a major impact on cities, transforming urban lifestyles, economic activities and mobility. During lockdown, while passenger mobility, particularly in the tourism sector, collapsed, goods managed to maintain a high level of mobility, thus limiting the possible effects of shortages. For logistics activities, this was a time to adapt to new settings. There was significant variability in the demand for goods that stretched some supply chains.

Logistics became a priority activity. More precisely, while it has always been strategic for cities, it became much more visible. Deserted by other forms of mobility, streets gave pride of place to urban services and goods transport vehicles. In France, a strict lockdown (the “first lockdown”) was implemented from 16 March to May 11, 2020. It reduced personal mobility to a bare minimum. In Paris, a quarter of the population left the city in search of greener and more spacious environments (INSEE, 2020). With the number of inhabitants decreased, visitors and tourists absent and several activities closed (restaurants, schools), the

demand for goods changed. Consumption took to other channels. Figures by Nielsen and FEVAD (2021) showed that in 2020 the French increased their online consumption of products by 32%, an increase rate twice faster than the year before. Physical brands' online sales (both grocery and non-grocery) grew by 40%, or three times greater than for the same period in 2019 (FEVAD, 2020). More than one in three consumers who made online food purchases during the first lockdown were newcomers, with 70% of them being baby boomers (born between 1940 and 1955) (FoxIntelligence, 2020).

Faced with changed levels and types of consumption, freight and logistics operators in cities had to adapt, while logistics real estate developers had to face their own challenges, with building sites closed and regulatory and licensing processes delayed. Our main research question became then to characterize precisely the way the urban freight and logistics system coped with the new situation. Our starting hypotheses were the following: freight stakeholders adapted quickly and overall successfully despite difficulties; there were nevertheless differences between transportation/logistics operators on the one side and real estate developers on the other side, in the amount and nature of difficulties. The main challenges that we wanted to test included organization of staff, sanitary requirements, and more generally operational, financial

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and economic challenges; as well as relationships with administrations and regulations. Finally, we wanted to check the ability of public stakeholders (municipalities, metropolitan agencies, regions, State) to deal with urban logistics challenges during a lockdown. In quasi real time at the beginning of the first lockdown in France, we engaged in a set of three surveys (described in Section 3). Our survey work is limited to the year 2020.

This paper takes the following form: after an introductory section (Section 1), we present a review of the (obviously recent) literature on COVID-19 and freight and logistics operations (Section 2). In Section 3, we describe the methodology and the characteristics of the three surveys. In Section 4, we present the results of the surveys, distinguishing between transportation/delivery operations and logistics real estate development. In Section 5, we identify policy issues. Section 6 concludes.

2. Literature review

This is not the first time a health crisis has affected the global economy. SARS (2002–2003) and H1N1 (2009) disrupted logistics chains, forcing them to readjust. Lessons were learned from these crises, particularly in terms of risk management and the vulnerability of global supply chains (Ivanov, 2020). However, this is the first time that we have experienced a crisis of this magnitude. In the first months especially, it has forced governments to lockdown populations, thus calling into question the downstream and the upstream parts of the supply chain, as well as urban distribution.

Since the pandemic started, research in logistics and transportation increased with a focus on understanding the pandemic impacts and identifying responses for the immediate or longer-term future. Impact assessments were carried out around the world to inform on developments in the logistics sector. To get a better understanding of operators' challenges and actions, data collection efforts were made in quasi real time with the pandemic progress and implementation of measures. Numerous researchers, companies, associations and trade organizations made surveys among logistics and transport stakeholders, in order to understand impacts of and solutions to the crisis. Today, the difficulty lies in compiling, analyzing and identifying major trends in a context of inflation of the metrics resulting from these localized surveys. Webinars, both academic and corporate (e.g. the Metrans webinar Industry Perspectives on Responding to COVID on October 1, 2020) flourished on the issue of COVID impacts, actually making conversations with freight stakeholders much more available and in a more direct form, to academics from all over the world.

Several scientific publications can already be noted. Many of them relate to global or national supply chains. Handfield et al. (2020) look at tariffs, trade and supply chains. Pache (2020) investigates health and emergency logistics. Rodrigue (2020) discusses impacts on trade and supply chains, OECD (2020) looks at world food supply chains, as do Barman et al. (2021). Zhu et al. (2020) discuss supply chain operations. Loske (2020) looks at freight volumes and capacity in food retail. COVID impact on ports and maritime traffic is examined by Notteboom et al. (2021). Sheffi (2020) provides a broad overview of supply chains' agility and resilience. He notes that consumers were provided with near normal levels and types of goods. In a transversal look, Grant and Bowen (2020) coordinated an effort to identify transportation research needs associated with COVID-19. Maintaining an open supply chain for vital goods and products is their key recommendation for research. The report also raises the issue of the role of technologies (including automation) to make goods movement more resilient and efficient. New types of businesses and jobs coming from the accelerated demand for online shopping should also be a focus. The increase in demand for home delivery services resulted in new "essential workers" who are less able to own and maintain a private vehicle, while these are necessary in the delivery business and increasing "gig" economy.

Regarding the impact of the lockdowns on urban logistics, academic

work is also increasing. Urban logistics refers to the management of freight transportation and logistics facilities in urban areas, including the supply of stores, businesses, construction sites, but also deliveries related to online commerce. Among the key stakeholders considered are logistics service providers, involved in freight transportation, delivery, and facility management services (Björger et al., 2021). The pandemic has highlighted urban logistics issues. One main question in the literature is whether it has merely reinforced pre-existing trends or whether it has also created new consumer demand and service provisions with long-term consequences for urban logistics. One important way research has developed is through the analysis of the impacts of the pandemic on consumption, particularly on online shopping (Kim, 2020). Rates of use of business-to-consumer (B2C) e-commerce have accelerated in a widespread manner, in rural, suburban, and urban communities as well as among different demographics. By the sheer amount of people living in cities, B2C e-commerce has been highly visible and discussed in relation to cities, together with its impacts on van traffic and pollution in particular (Villa and Monzón, 2021). The acceleration of growth in e-commerce in 2020 is indeed dramatic, especially in the grocery market, as shown in Fig. 1 below for France. The (mostly urban) French supermarket chain Monoprix recorded a 974% increase in new customer accounts following the announcement of the first lockdown (Cousin, 2020). In the UK, the online supermarket chain Ocado doubled its sales during the Spring 2020 lockdown, with 600 000 households trying it for the first time (Econsultancy, 2020). The pandemic encouraged online sales among regular consumers and also proved highly effective in accelerating e-commerce adoption among "laggards". These developments have occurred worldwide (McKinsey & Company, 2020).

E-commerce has gradually acquired a very important economic - but also symbolic - role and has become a key element in the discussion on the future of cities. Sheth (2020) describes immediate impacts on consumer behavior including blurring of work-life boundaries and home delivery "of everything". As consumers adopt and embrace newer technologies, he suggests that peripheral alternatives to existing habits become the core, while existing habits become peripheral. Holguín-Veras and Wang (2020) show how the pandemic has significantly altered how people shop, how much they buy, the trips they take outside their homes. The Urban Freight Lab (2020) in Seattle explored the impact of COVID-19 on logistics providers, retailers, and manufacturers. The main impact on supply chains, reported by 67% of the respondents, was the change in demand. Operators' actions included a re-focus on "main business segments" (somewhat contradicting the need to be flexible towards customers' demands, also referenced in other works); as well as increased communication with customers to identify the range of immediate needs of individuals and businesses served. Long-term plans taken across different supply chains were building resiliency in supply chains, building new online business services, making inventory more visible and accessible to online channels. In South Africa, Luke (2020); Luke (2020) noted that the pandemic provided an opportunity to start-ups to develop their activity in the home delivery market. Large online retailers increased sales significantly, and previously store-based retailers strengthened their online service, which led to a growing

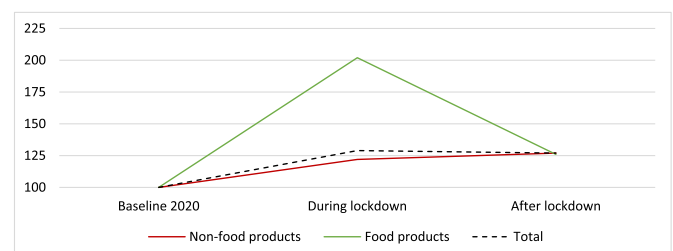


Fig. 1. The two evolution curves of B2C e-commerce (food and non-food) during and just after the first lockdown in France (source: the authors, using data from BCG x Foxintelligence, 2020).

demand for last-mile delivery services. Settey et al. (2021) noted a renewed interest in urban consolidation centers, urban logistics facilities from which consolidated deliveries are carried out within city center. The use of autonomous vehicles also emerged as an interesting solution during a pandemic period, limiting human contacts and the spread of the virus (Feng, 2021). These two examples show that the pandemic has not necessarily led to disrupting innovations in urban logistics. It may have accelerated the development of existing solutions, but this impact will need to be closely examined when sufficient data will be available.

The European Parliament in a brief identified several COVID-19 related challenges on urban mobility, with one section dedicated to freight and logistics (Lozzi et al., 2020). Fragmentation in loads and trips is one of the challenges, which is accentuated by the expansion of e-commerce and instant deliveries, and accelerated further by lockdowns, contributing to an increase in the number of deliveries and in environmental impact. New types of soft modes (such as cargo-bikes) for freight movements emerge. The sector suffers from lack of workforce, assets and resources. The brief calls upon local authorities to encourage collaboration between operators, by supporting business networks and favoring the sharing of resources (warehouses, vehicles, information systems) to optimize delivery, collection times and hubs in cities. Clear policies on loading/unloading areas must be developed as well, integrating freight into the planning of a more dynamic and flexible use of curb space. Digitalization can support the development of “contactless” delivery of goods and services to final consumers, minimizing the risk of contagion and increasing efficiency of the deliveries. Instant delivery couriers who played a fundamental role during the lockdown period need greater safety and contractual guarantees. Moreover, logistics companies must ensure safer working areas to avoid clusters of infections. Brainstorming has also risen from European networks covering city governments and businesses, identifying learnings from the COVID-19 crisis on logistics and urban logistics. The ALICE platform identifies a possibility for re-shoring. Logistics solutions for local online commerce need to be developed. Clean and interconnected urban logistics is now a key for the future of cities (Migne et al., 2020). Autonomous deliveries are examined by Pani et al. (2020) and Buldeo Rai et al. (2022) as potential solutions for managing goods distribution during a pandemic.

3. Methodology: three surveys along the pandemic progress

We implemented three surveys during and after the first lockdown in France (March–May 2020), with the views of getting first-hand knowledge on urban logistics operations during lockdowns and identifying challenges while characterizing operators’ response to the challenges. The three surveys took different and complementary forms, covering various categories of stakeholders: freight carriers (from small to large); third party logistics providers; on-demand delivery platforms; policy-makers; and logistics real-estate developers.

The three surveys are the following:

Survey 1: ‘Barometer of urban logistics in times of lockdown’: a daily/weekly survey was set up during March 26–May 8, 2020. The daily survey included a panel of eleven delivery companies operating in the region of Paris, a metropolitan area of twelve million people and 1280 municipalities (mentioned as “Paris” in the remainder of the article). These companies ranged from on-demand instant delivery platforms; traditional last mile small and medium-sized enterprises (SMEs); to very large groups operating in Paris directly or through their contractors. We selected the companies so as to have a representative panel, based on data on urban freight deliveries provided by Toilier et al. (2016). All major sectors were represented, although we did not try to reproduce the share of each sector, because of the limited size of the panel. Sectors represented were: general cargo (including companies providing – in normal times-for the service industry such as linen pick-ups and deliveries to hotels), parcel and express – including for e-commerce-, deliveries to supermarkets, deliveries to specialized retail, including car

dealers), deliveries to pharmacies. We added to these the new sector of on-demand “instant” deliveries (Dablanc et al., 2017), which was not included in the regional urban freight survey carried out in 2012–2014 (Toilier et al., 2016). To our initial surprise, all companies we asked to participate answered positively. We credit this to the major sense of the unknown generated by the COVID crisis in early March 2020, and the need to testify. Many respondents explained they were happy to inform on their activity during these very unusual times. Additionally, a weekly survey was carried out among the four main French freight and logistics business organizations (FNTR, TLF, SNTL and OTRE) who reflected the experiences and challenges of their members. All organizations responded positively to our request for participation.

Questions were to be answered in a qualitative manner. We estimated that it would have been useless to ask companies about their specific activity metrics (number of deliveries, tons, revenue), as this data is usually perceived as highly confidential in the freight sector. Questions were the following (see also the full questionnaire presented in Appendix 2): (1) Perceived daily number of deliveries relative to “normal” times (a lot more, more, same, less, a lot less). The way “activity” was to be defined was not predefined and let to the companies. (2) Current difficulties with obtaining or supplying sufficient sanitary equipment to make deliveries (yes, no). (3) Current difficulties with managing or recruiting sufficient staff to make deliveries (workers with a fixed contract, workers with a temporary contract, self-employed). (4) Current difficulties with traffic, traffic regulations or parking (deteriorating conditions, improving conditions, no change). With the prospect of gradual easing of lockdown that was announced for May 11, 2020, we added an additional question as of April 20: (5) Anticipated changes (activities, organization, recruitment and partnerships, no). If respondents answered affirmatively to questions (1), (2), (4) and (5), we asked them to specify the reasons for volume changes, the type of material and traffic or parking conditions they had difficulties with and the type of changes they anticipated. In addition, an open comment section was available identifying specific initiatives. We tracked evolutions overtime at company level and on the panel. About 200 completed questionnaires were collected over a period of forty-five days. Six detailed weekly results and summaries are available online from: <http://www.lvmt.fr/chaires/logistics-city/>.

Survey 2: we carried seventeen semi-directive interviews (about 1 h each) with third-party logistics providers and shippers operating in French cities during the period March–April 2020. Our goal was to interview a wide range of stakeholders from the transport and logistics sectors to understand their management of the crisis and the solutions implemented during the lockdown. We chose both big and small companies to embrace a large panel of respondents. We used social networks (LinkedIn and twitter) to get into contact. We also conducted ten interviews with local public authorities mostly located in the Paris region (eight municipalities), but also in Normandy and Lyon (two). Our aim was to understand their role in urban goods distribution during the lockdown.

The interviews also allowed us to obtain answers on the possible outcomes of this crisis. Four additional interviews were made in December 2020. Two of them were carried out with companies already interviewed in April 2020, which allowed us to put their management of the crisis into perspective.

For surveys one and two, Appendix 1 provides the detail on the type of companies in the panel (survey 1) and interviews (survey 2). Due to confidentiality agreements, we cannot provide the name of the companies.

Survey 3: a monthly survey on logistics real estate developers in France was implemented in March, April, May, June, September and October 2020. Between 30 and 50 companies that are members of Afilog responded every month to the survey. Respondents were very representative of all Afilog members (totaling about a hundred). Afilog is an association bringing together the stakeholders in logistics real estate: developers, investors, constructors, architects, insurers, real estate

service providers and operators (manufacturers, carriers, retailers, logistics service providers). All major logistics real estate developers operating in France are members and all of them participated in the survey. Questions were (see [Appendix 3](#) for full questionnaire): level of activity compared to previous month and “normal” times, main impacts of the pandemic (closed list of answers), share of building sites closed, use of national support system put in place to help companies (yes/no), trust in the capacity of the French logistics system to cope with pandemic challenges (yes/no), estimated time to go back to a normal situation after the end of the pandemic.

For all three surveys, as noted earlier, stakeholders were eager to participate. Response rate was particularly high during the first lockdown. Adding to that a high number of business webinars set up by freight organizations and large companies, it can actually be said that the period has been a “blessed time” for data and information collection for academics.

4. Results

In section 4.1, we present results from transportation operators (surveys 1 and 2) then in section 4.2 we identify results from the real estate industry (survey 3). Results express the range of difficulties and capacities to respond by several industry segments of urban freight and logistics.

4.1. Urban delivery operators: extreme variability of orders and sectorial economic difficulties

4.1.1. Extreme variability of orders

The impact of the March–May 2020 lockdown on delivery companies was strong. It was reflected in the disorganization of flows, which impacted the optimization of routes. There were more empty returns, which affected transportation costs. The unpredictability of orders (in volumes and types of goods) was the most complex issue to manage.¹ [Fig. 2](#) shows, on a weekly basis, how perceived daily volume of deliveries evolved (although, as mentioned in the methodology section, no specific metrics were asked of the respondents). In red, activity was thought to be lower or much lower than usual, in green activity was thought to be higher or much higher than usual, and in grey activity was thought to have remained the same. We see from the pie charts that colors changed quickly from one week to another, illustrating how fast orders were changing.

4.1.2. Sectorial challenges and common challenges

Depending on goods sectors, the variability of orders and levels of activity were actually quite different, and they also evolved over the months. The days following the decision to confine the population in March 2020 were marked by high consumption in some sectors such as food, creating situations of shortages on the shelves of local shops, stressing supply chains, forcing a review of stock levels and the need to consider alternative sources of supply. In some cases, the search for alternative suppliers turned to local producers and shorter supply chains for answers. Logistics service providers and shippers were able to adapt quickly to respond to this new demand, which stabilized rapidly. Shortages in the mass retail industry were short-lived.

Other food supply segments had to adapt. With restaurants closed, the Rungis wholesale market for fresh produce, meat and fish in the South of Paris set up a comprehensive home delivery service to consumers. Demand for meal deliveries dropped at the beginning but picked up again in the second part of the lockdown, following the reopening of delivery services by restaurants and fast-food chains.

¹ According to figures from the Paris Chamber of Commerce, 24 000 restaurants and bars closed during the first lockdown, as well as 72% of retail stores, and 9 hotels out of 10.

The official identification of a category of “essential goods” led to other reorganizations of supply chains. While the food retail sector was facing strong demand, the industrial sector collapsed. Many freight companies involved in B2B sectors not identified as essential, saw their sources dry up and had to reorganize their activities, finding new markets, including the delivery of masks and hydroalcoholic gel that some domestic manufacturers started to manufacture. Many retailers opened up to online distribution, thus accelerating a move already under way and providing added markets to logistics providers. Retail and logistics urban geography changed: the retailer Monoprix (Casino group) transformed five of its stores located in areas such as the central business district of La Defense (with no inhabitants and all offices closed) into urban warehouses (“dark stores”) for home delivery services. Peer to peer “collaborative” deliveries (such as Yper for example, based on neighbors’ collaboration for home deliveries) emerged.

In the parcel and express market, the volumes of parcels distributed during the first lockdown were comparable to those during peak periods such as the end-of-year holiday season. Logistics providers needed some time to prepare and find sufficient staff. Not only parcel volumes changed all at once, there was also a shift in their destinations and types. Temporary store closures (including collection points) and the new reality of working from home led to a rapid increase in home deliveries in the strict sense, to the detriment of collection points, lockers and workplaces. Especially collection points had until then gradually captured significant market shares in France. Carrying out contactless deliveries became important (although not always respected by consumers), with workers signing for receipt instead of the receivers. By the end of April, a respondent noted tension with increasingly demanding consumers. While the destinations for parcels became unified (all deliveries had to be made to homes), the types of parcels became more diverse: large consignments such as furniture or outdoor toys, or goods that are not usually delivered to private homes such as large containers of paint became regular products in home delivery supply chains. Oversized and under-packaged parcels require extra labor for processing, which was initially lacking and hampered further by absenteeism. Respondents raised issues with staff absenteeism throughout the survey period, explained by the virus itself, childcare obligations or “a certain fear.”

A clear impact of demand variability and supply chain disorganization was the increase in empty returns, deteriorating productivity. Overall, the higher productivity made possible by better traffic conditions was counter-played by other factors, which pushed down urban freight productivity: less return freight, more staff disorganization, more home deliveries (as opposed to deliveries to pick-up points). We noted several instances of undue fines given by enforcement agents, despite the authorization permits carried by delivery workers. Reduced passenger mobility (and subsequent reduced public transportation service) also hindered delivery workers to commute to the workplace, which was raised in the surveys as a key topic.

The situation of self-employed delivery drivers, who were highly exposed – sanitarily and economically – during the crisis, was highlighted in the context of case law on employment contracts for digital mobility platforms. A major decision by the highest French court, the Court de Cassation, in March 2020 emphasized the need for clear standards for the organization of gig workers in ride sharing and instant deliveries. Respondent noted concerns about lockdown guidelines and rules not well adapted to instant delivery workers.

Surfing on the wave of demand for online grocery products while responding to delivery challenges, partnerships formed between meal delivery platforms and major grocery retail chains. Deliveroo teamed up with Casino to offer grocery products of its various brands, while UberEats started a collaboration with Carrefour.

The shortage of sanitary and protective equipment for delivery staff was important and remained unresolved for most companies until the end of the lockdown period. Mid-April, freight and logistics business organizations signaled the low reactivity of the local marketplace for

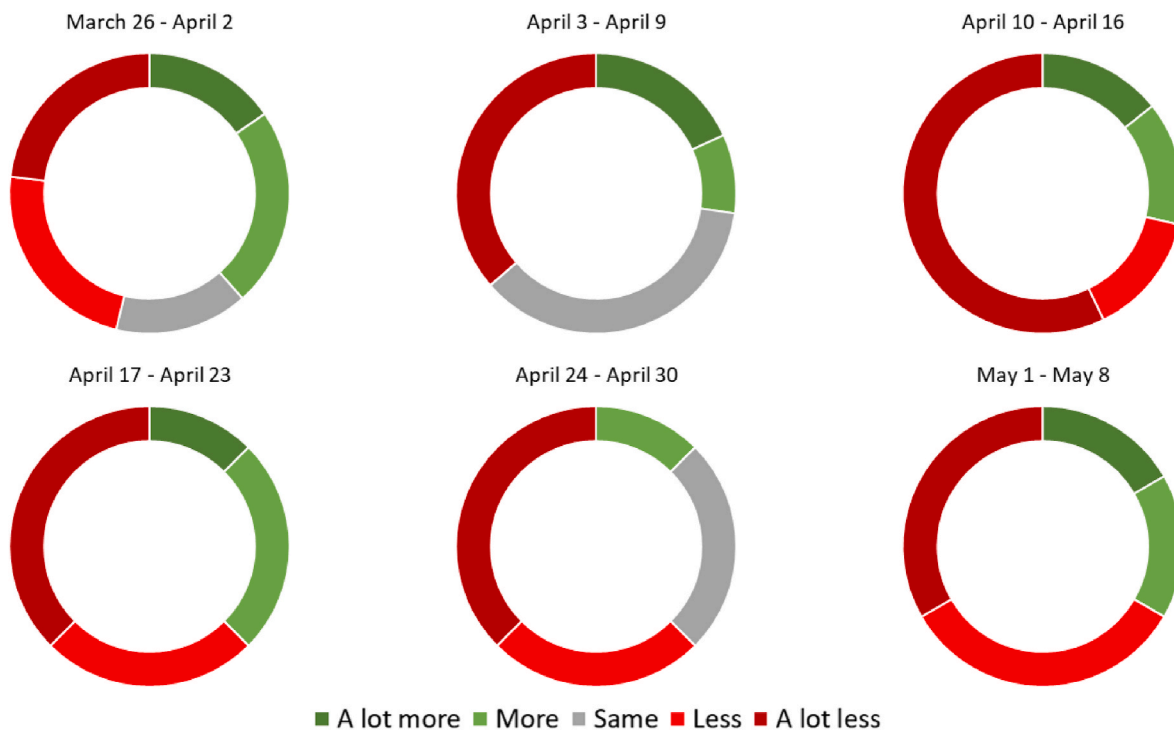


Fig. 2. Evolution of perceived daily delivery activity in Paris during the first lockdown compared with a “normal” period (NB Respondent companies were not asked to specify in which way they defined ‘activity’). (Source: the authors).

masks and actions to consolidate orders. At the same time, urban logistics operations experienced recruitment problems, for employees but also for independent workers, temporary workers and subcontractors in the last mile. Faced with these difficulties related to the availability of workers, companies reinforced their sanitary policies. Amazon had to close its French fulfillment centers temporarily at the end of April following a legal action by the unions, because sanitary conditions were not respected.² This court decision had an impact on all transport and logistics companies, which reinforced sanitary measures as well as dialogue with unions.

It is worth noting numerous initiatives and participation in charity operations by urban logistics providers. One medium size transportation company testified on March 30: “We are carrying out operations with several partners to help Paris hospitals by supplying unsold food products to the various services of the hospitals. We initiated this operation last week in a hurry and succeeded in delivering 8000 meals (starters, main courses, desserts) to more than 20 hospitals in less than four days.” ShippingBo, a Toulouse based technology platform for ecommerce, provided free access to their solutions to local retailers during the lockdown.

4.2. Logistics real estate did well despite many obstacles

Overall, logistics real estate was in a very good shape before the first lockdown. The pandemic generated major but short-term losses and difficulties due to the stopping of building sites. Fig. 3 shows that the perception of activity levels from logistics developers improved gradually after an initial shock. Activities recovered partly and progressively after the first lockdown, adapting to the new sanitary processes on building sites. In October 2020, activity was seen as more worrying, as a second lockdown was discussed. Overall, industry indicators (ImmoStat, 2021) show that activity actually decreased by only 7% in 2020 compared with 2019, which was an exceptionally active year. Despite

the various sectorial evolutions and global uncertainty, as well as the many short term organizational hurdles introduced by the lockdowns and other measures (see below), the logistics real estate sector continued to benefit from a very favorable trend existing before the pandemic. It quickly grasped that the situation offered new opportunities, particularly through the development of e-commerce. Some specific concerns emerged as shown on Figs. 4 and 5.

Respondents were asked about the three main impacts of COVID-19 on their activities (Fig. 4).

Staff reorganization was the main item on managers’ minds in the first month of the lockdown. This issue remained very high during the whole time of the survey, but quickly, in terms of logistics facilities development/management, the main challenge became the administrative delays in regulatory permits (building licenses, environmental licenses).

The relationships with clients, users of logistics facilities, suppliers, and administrations also became a key challenge, as many partners were challenged with staff reorganization and absenteeism.

Sanitary restrictions made (quite rightly so, of course) operations more complex, both on warehouse construction sites and within warehouses in operation. Inside warehouses, measures included physical distances between workers as well as between truck drivers and warehouse workers, mandatory wearing of masks and gloves and repeated cleaning. As mentioned above, a court ruling about Amazon’s inability to comply with health regulations led to the temporary closure of all French warehouses (the company supplied French consumers from warehouses abroad).

At the end of the period, the sector’s activities (construction, maintenance and management of warehouses) remained high especially in and around the main cities, pushed by a continued demand for urban facilities to sustain growing B2C and express deliveries activities. However, concerns were expressed for the longer term: the cancellation of business events, the lack of networking and difficulty to meet new clients may well be translated into missed opportunities for the rest of 2021 and following years (Fig. 5).

Table 1 provides a summary of the qualitative assessments of the

² Judiciary Court of Nanterre, 14 April 2020, # 20/00503.

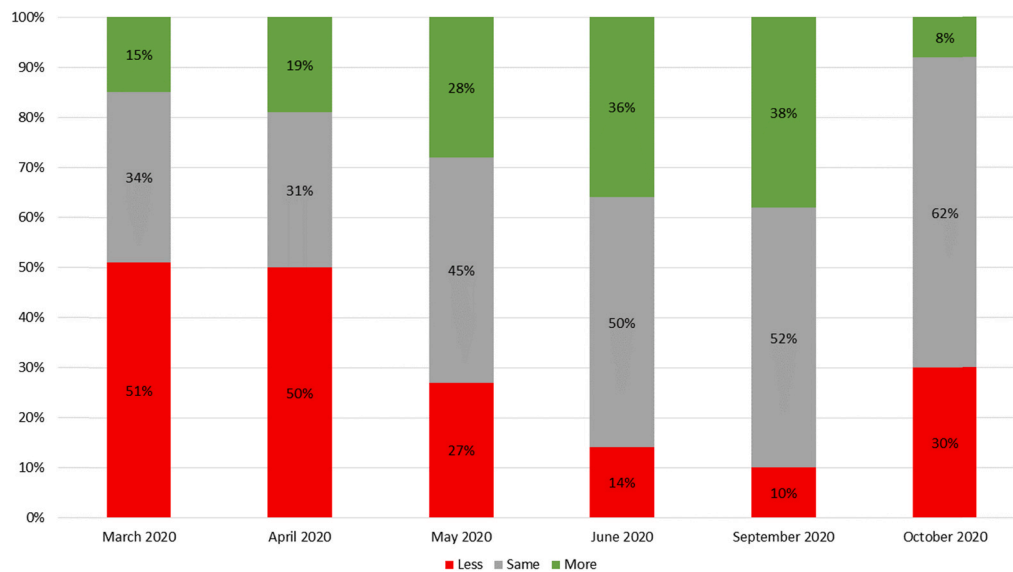


Fig. 3. The evolution of activity levels, as estimated by logistics real estate developers in France compared to “normal” times, during March–October 2020. (Source: the authors).

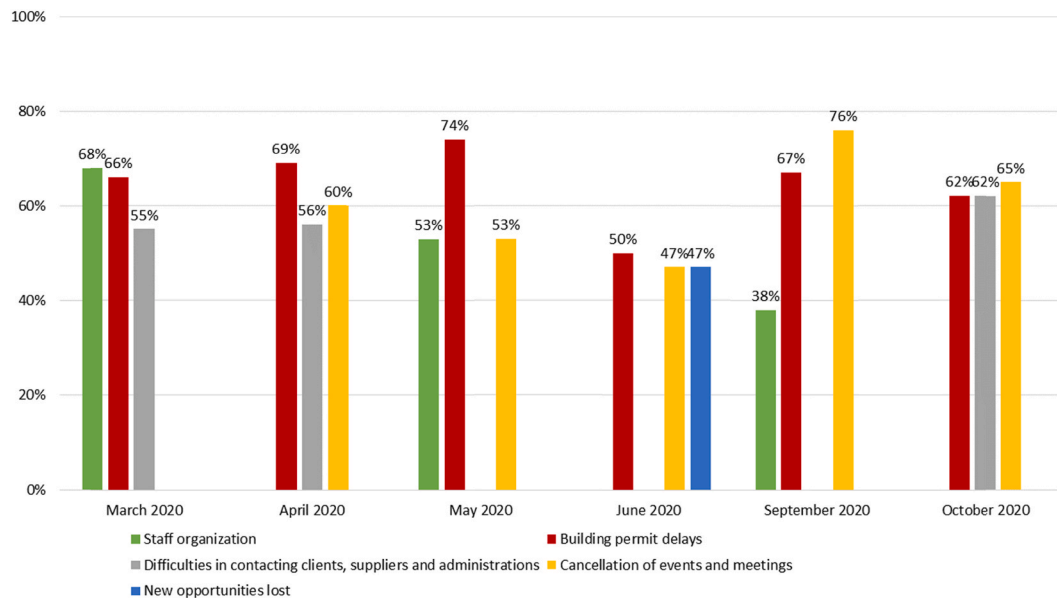


Fig. 4. Three main impacts of COVID-19 as perceived by real estate developers in France, March to October 2020. (Source: the authors).

respondents made each month. At the end of the period, it shows a growing concern over the “double perception” of the general public, public opinion and local administrations towards logistics activities and warehouses: on the one side, praise over the key role played by logistics to face challenges in organizing goods distribution during a pandemic; on the other side, a desire to stop the development of warehouses, sometimes associated with ecommerce warehouses.

5. Policy implications

The first lockdown (March–May 2020), the second lockdown (November 2020) and all the various regulatory measures taken in between such as curfews and partial closing of some activities in France in 2020 demonstrated the flexibility of the organization of the distribution of goods in urban areas. They also raised issues that directly relate to public stakeholders, whether local or national. Urban governments and all levels of administrations (especially the State for some of the

processes involved in warehousing development) were involved in the facilitation of logistics operations in several ways during the year. They also were the source of additional difficulties in some cases.

5.1. Quick responses to urgency at the local level

At the start of the first lockdown, local public stakeholders in France took a very active part in proposing solutions and facilitating urban logistics. They took their share of the needed short-term reorganization of public space and regulations: delivery time-windows were immediately relaxed, in order for logistics activities to run smoothly.

During the first lockdown, public authorities’ management for the supply of goods was especially focused on medical equipment (masks, hydroalcoholic gel). During the whole period, including during curfews, several municipalities set up websites identifying local stores willing to develop a home delivery service when they did not have one. At the peak of the first lockdown, the Paris website <https://www.paris.fr/pages/livr>

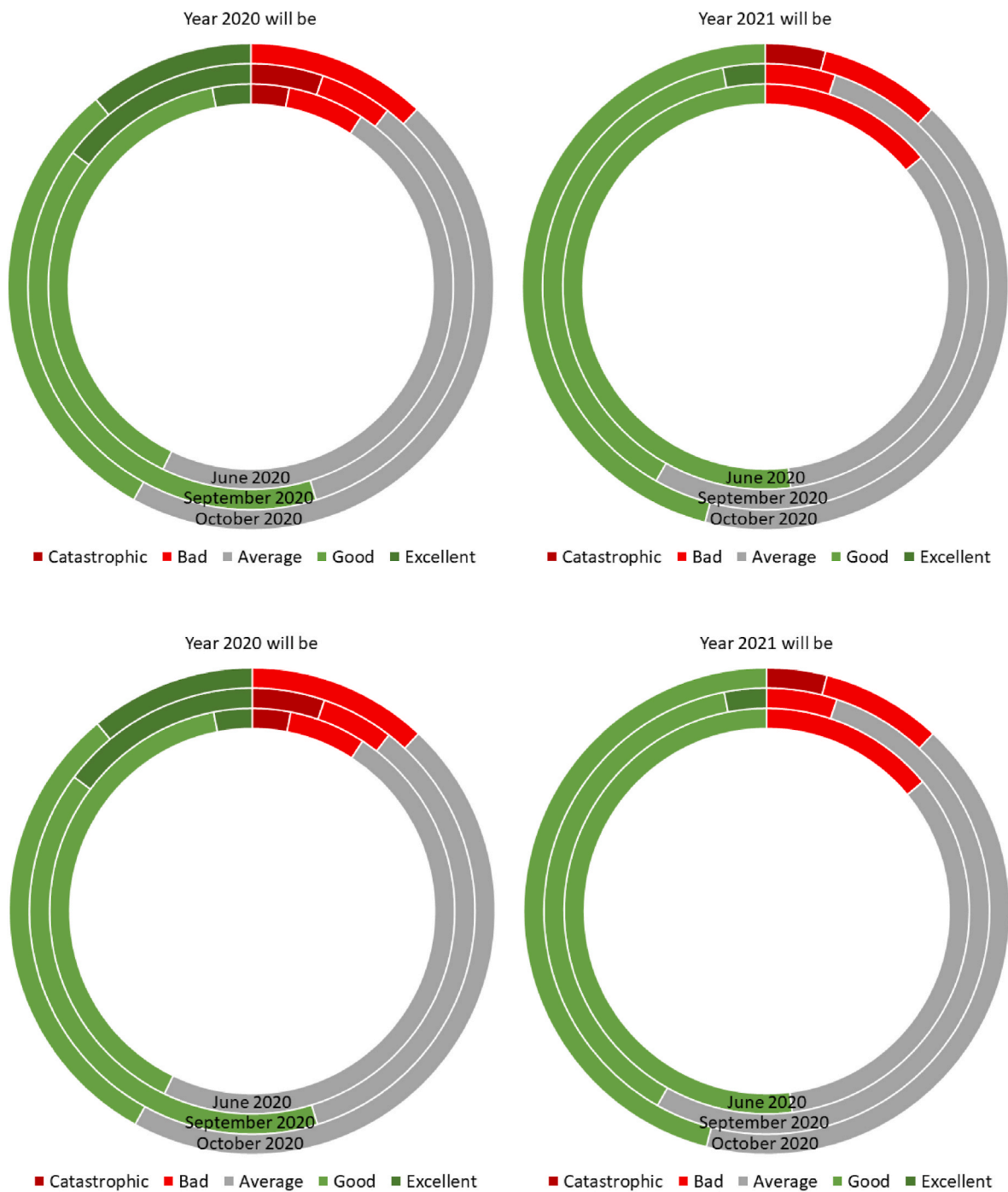


Fig. 5. Expectations for 2020 and 2021 from logistics real estate developers in France, during June, September and October 2020. (Source: the authors).

[aision-alimentaire-a-domicile-les-commerçants-parisiens-mobilises-7685](#) identified and mapped more than 1000 local retailers committed to proposing home deliveries. Cities set up home delivery services directly, as the City of Paris did for farmers' markets: as of end of April 2020, all Paris open air market merchants of fresh food could use a home delivery service platform set up by the municipality, with consumers paying a price of 5.9 euros per delivery. Some municipalities converted municipal school cafeterias into centers for the production and distribution of meals to the elderly and isolated people. It was also a way to maintain school workers occupied. The Paris Regional and Metropolitan governments provided financial support to companies impacted by COVID-19, including transport and logistics companies.

The first lockdown in France occurred between the two rounds of

France municipal elections, and one year before regional elections. A number of these initiatives were also motivated by a desire to increase public policies' visibility.

5.2. Logistics omitted from several post-lockdown initiatives

Many municipalities engaged in a reorganization of their street space to accommodate for a "different urban world" (Mayor of Grenoble) after the first lockdown. This was called "tactical urbanism", expressing the capacity of local governments to change quickly, cheaply and temporarily the use of space in cities. At the beginning of May 2020, just before the end of the first lockdown, the municipality of Paris announced its plan for 50 km of "corona-lanes", or temporary new bike lanes, to help

Table 1

Key monthly feedback from logistics real estate developers in France, during March–October 2020. (Source: the authors).

Survey month	Key feedback
March 2020	Strong adaptability, uncertainties and worries but optimism despite everything.
April 2020	A gradual recovery but aggravated administrative bottlenecks.
May 2020	A strong recovery and the catching up of accumulated backlogs, but progress risks being blocked due to persistent or even worsening administrative delays.
June 2020	Confirmation of a strong recovery and catching up on accumulated delays, but progress continues to suffer from administrative delays and the uncertainties for 2021 and beyond are very real.
September 2020	Confirmation that the year 2020 should be rather good but concerns for 2021; progress continues to suffer from event cancellations and administrative delays.
October 2020	Confirmation that the year 2020 should be rather good, but costs and complications related to staff and site reorganizations and persistent administrative delays; concerns for 2021 due to missed opportunities following event cancellations, uncertainties and a slowdown in calls for tenders. More diffuse concerns about the loss of the sector's image with the general public due to the "anti-Amazon" campaign.

Parisians go back to their activities without having to use public transport. Increased pedestrianization of several key locations was also decided: around schools, train stations, or large commercial centers such as Les Halles. Instructions for use of these areas took deliveries somewhat into account: cargo-cycles were encouraged to use the new car-free areas. However, in many cases, van and truck traffic was not addressed, and it took some strong demand for dialogue from freight organizations to settle some of the most pressing issues in the post-lockdown situation, such as the implementation of on-street electric fast charging stations. A large public consultation in September–December 2020 dedicated to curb management and on-street parking management in Paris included the organization of a dedicated workshop on loading/unloading issues (November 20, 2020) that involved more than 100 people online.

French municipalities accelerated the implementation of low and zero emission zones, finally catching up with the rest of Europe (Belliard, 2021). One specific issue has emerged in post-first lockdown disputes between local decision-makers and freight operators: the status of trucks (commercial vehicles over 3.5 gross weight tons) in the new traffic restrictions. Zero emission trucks are yet poorly available at a reasonable price. Operators ask for subsidies to acquire electric trucks, and/or temporary exemptions and ban-free corridors for entering cities. The argument is that replacing trucks with (many more) electric vans will increase urban congestion.

In one clear example, freight stakeholders failed to raise the attention of public decision-makers to delivery issues. Municipalities gave restaurants and bars the right to extend terraces, so that more customers could be accommodated in outdoor conditions. Many of these new uses of the curb were made at the expense of on-street loading/unloading areas. When full closure of restaurants was decided for the second lockdown (November 1, 2020), delivery areas were not transferred back to delivery operations. Instead, they remained used to store the various equipment needed by restaurants to organize their terraces (fences, wood floors, plant pots).

5.3. A failure to accommodate logistics facilities' development

As seen in Section 4.2, one of the main challenges faced by logistics facilities' developers during and after the first lockdown was the unresponsiveness of public agencies for the regulatory/permitting process. Public agencies include municipalities (building permits) and State agencies (various environmental authorizations). Delays of several weeks or months in processing applications were mentioned repeatedly. Large as well as small operations, some of them urgently necessary to respond to the increased demand for logistics (parcel, fresh food), were

delayed. This happened in all parts of the country, with some specific markets such as Lyon faced with increased difficulties.

As an example of the gap between the current regulatory process and market's requirements expressed during 2020, one specific issue emerged. Urban warehouses in France cannot store goods (storage being defined as a time period of three days or more in a warehouse) unless they are given a specific authorization which is difficult to obtain. Even if they are authorized, urban warehouses cannot be in proximity to other buildings and must apply a buffer zone of 20 m, making these facilities complicated to build in dense areas.

As innovations emerge in urban warehousing (vertical developments, underground developments, automation), a lack of expertise at the level of local governments was identified in the dialogue between local governments and the logistics real estate industry during 2020.

5.4. New policy issues emerging from the pandemic

The pandemic has been questioning the management of strategic sectors such as urban logistics. Below are three current policy discussions that emerged (sometimes only briefly) in our interviews that we feel are worth mentioning.

- *Technologies.* The pandemic has not generated an obvious increase in the use of high-profile technologies such as delivery robots and drones, despite their contactless character. However, discussions are emerging on the role that technology will play in urban freight management and topics like automated delivery vehicles already generate preliminary consultations between delivery service providers and policy makers on authorizations to operate in urban and suburban areas.
- *Gig workers.* Improving the status, working conditions and remuneration of independent delivery workers (gig workers) operating for on-demand instant delivery platforms are discussed at the local and legislative level. These issues were just beginning to be raised before the pandemic and are now on the fore of the agenda.
- *Urban freight data.* Although new information channels opened up thanks to the rapid development of remote meetings and business webinars, generating data on specific sectors and about limited time periods, knowledge of urban goods movements remained poor during the lockdowns, especially at a macro level. This situation generated uncertainties about changes in the level of logistics traffic, as well as questions about traffic management. Subsequently, this exacerbated municipalities' low capacity to identify environmental impact assessments of urban freight. Municipalities are now considering improving data collection tools, including data sharing with logistics operators.

6. Conclusion

In this research, our main question was to characterize the way the urban freight and logistics system coped with the COVID-19 pandemic in France in 2020. We carried out three surveys and several interviews with operators and public agencies. We found out that operators adapted quickly and overall successfully; one major difference was between delivery operators on the one side, and real estate developers on the other side. All of them experienced challenges related to the organization of staff as well as sanitary requirements, and more generally operational reorganization. But the first group (transportation) experienced higher levels of financial and economic challenges; while the second group (property development and management) experienced difficult relationships with administrations and regulations (mostly because of delays in building permits), while enjoying a rather high level of activity. The ability of public stakeholders (municipalities, metropolitan agencies, regions, State) to deal with urban logistics challenges during the lockdowns was diverse. Municipalities were quite quick in

reorganizing their local traffic and parking regulations in order to ease the urban goods distribution process during the first lockdown; in a second phase, they adopted traffic, parking and “tactical urbanism” measures that made deliveries harder. At the urban planning level, policies related to the building and permitting processes impacted urban logistics negatively.

The COVID pandemic has made urban logistics more visible. More precisely, logistics is now identified as a key topic of local policies, with potentially conflicting agendas: a more efficient urban goods delivery, made necessary by the accelerated growth in online consumption, may be impaired by some of the measures taken to make cities greener, as illustrated by the status of large lorries within new low emission zones, or the difficulty in introducing architectural innovations in urban

warehousing.

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L. Dablanc and Heleen Buldeo Rai mostly were involved in Survey 1, A. Heitz mostly was involved in Survey 2. D. Dizian and L. Dablanc mostly were involved in Survey 3.

Appendix 1. Types of companies or agencies surveyed and interviewed for surveys 1 and 2

Survey 1

N°	Type	Sector	Function
1	Transport company	Parcel delivery platform	Manager
2	Transport company	Parcel delivery company	Director
3	Transport company	Parcel delivery platform	Manager
4	Transport company	Food delivery platform	Director
5	Transport company	Food delivery company	Director
6	Transport company	Transport and logistics operator	Director
7	Transport company	Transport and logistics operator	Director
8	Transport company	Food delivery platform	Manager
9	Transport company	Transport and logistics operator	Director
10	Transport company	Urban logistics operator	Director
11	Transport company	Parcel delivery platform	Manager

N°	Type	Abbreviation	Name	Function
1	Business organisation	TLF	Union des Entreprises Transport et Logistique de France	Director
2	Business organisation	SNTL	Syndicate National des Transport Légers	Director
3	Business organisation	OTRE	Organisation des Transporteurs Routiers Européens	Manager
4	Business organisation	FNTR	Fédération Nationale des Transports Routiers	Director

Survey 2

N°	Type	Sector	Size (number of employees)	Function	Date (2020)
1	Digital platform	Road transport	<50	Manager	March–April
2	Port	River transport	<50	Director	March–April
3	Shipper	Mass retail	<300 000	Manager	March–April
4	Shipper	Mass retail and e-commerce	<300 000	Director	December
5	Shipper	Mass retail and e-commerce	<30 000	Director	December
6	Shipper	E-commerce	<500 000	Manager	March–April
7	Shipper	Industry, mass retail and e-commerce	<500	Director	March–April
8	Logistics service provider	Food delivery, controlled temperature shipments	<50	Director	March–April
11	Logistics service provider	Food delivery, controlled temperature shipments	<50	Director	March–April
10	Logistics service provider	Supply chain management	<40 000	Director	March–April
11	Logistics service provider	Supply chain management	<40 000	Director	December
12	Logistics service provider	Transport and logistics	<50	Director	March–April
13	Logistics service provider	Transport and logistics	<50	Director	March–April
14	Logistics service provider	Transport, Parcel's delivery company	<500 000	Director	March–April
15	Logistics service provider	Transport, Parcel's delivery company	<100 000	Director	March–April
16	Logistics service provider	Transport, Parcel's delivery company	<40 000	Director	December
17	Logistics service provider	Transport, Parcel's delivery company	<200	Director	December
18	Logistics service provider	Transport and logistics	<20 000	Director	December
19	Business organisation	Logistics providers, shippers (manufactures)	/	Director	March–April
20	Business organisation	Transport and urban delivery	/	Director	March–April
21	Business organisation	Logistics and supply chain	/	Director	March–April

Appendix 2. Survey 1 daily (companies) and weekly (freight organizations) questionnaire

- Change in daily number of deliveries
- Change in delivery activities
- Difficulties in obtaining/supplying sufficient sanitary materials

- Difficulties in managing/recruiting sufficient staff
- Difficulties with traffic, parking, access to recipients or with traffic regulations
- Changes anticipated with phasing out of lockdown, in terms of activities, organizations, recruitment and partnerships
- Other difficulties or initiatives

Appendix 3. Survey 3 monthly questionnaire

- Impacts of the sanitary crisis and containment on AFILOG members
- Level of business activity in (month), compared to what it is in normal times and compared to (month before)
- The three main impacts of the crisis on members' activity as of (end of month)
- Share of members' or their clients' building sites that have been stopped
- For the building sites that have resumed, what are the two main difficulties encountered?
- What percentage of your company's employees are teleworking full-time?
- Members with administratively delayed building permit requests
- Are members aware of and using the State financial support systems put in place during the lockdown?
- Do members use, or will they use, the aid schemes?
- Confidence in the French logistics system to cope with the situation
- How long after the end of the lockdown will it take for members to return to their pre-crisis level?
- Do you think that the political developments of the last few months (municipal elections, debate on the ban on new warehouses, zero land artificialization discussion) will change the practice of your business and impact your results?

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